A fine geometrical elevation of the bridge at Schaffhausen is also given in Gauthey's "Traité de la Construction des Ponts," &c., edited by M. Navier, Paris (tom. i. 1809, tom. ii. 1819), on plate iii. fig. 5.

Perhaps, in imitation of that at Schaffhausen, Joseph Ritter, a Lucerne carpenter, built in 1764 his first hanging wooden bridge over the River Candel, in the canton of Berne, with a span of only 156 feet, and on account of the precipitate banks of the river, with a much steadier hold, and therefore much simpler than its prototype; and in 1786 he followed it up by building another over the Reuss, in the same canton, with a span of 149 feet, which seems to have had many of its parts in common with a hanging bridge recently built over the Calder.

In 1786, an architect of the name of Etzel built a bridge on these principles at Plochingen, in the then dukedom, now kingdom of Würtemberg, over the Neckar; it has two spans over the river, resting upon a pier in the centre, each of 176 feet, and has this peculiarity, that the centre is narrower across than the ends, to prevent its slipping out of position.

In more modern times the art of wooden-bridge building has been carried to great perfection in Hungary, by the Austrian road architect, John Gross, who in 1807-8 built a covered bridge over the Waag, in the county of Thurotz, on the principle of the former at Schaffhausen, which seems to have served as a general model. It has, however, the advantage of being built upon the two banks, bold and precipitate, which permit the staunchions that support it to be directed to a common centre above the roadway, which gives the whole great strength and firmness. It is described in Jos. Jeckel's "Galizien's Strassen und Brückenbau," Wien and Trieste, 1806, and copied from this into Langsdorff's "Brückenbau," plate xvii. But the most curious feature in these Magyaric structures is their small cost; the above was built for only 35,000 gülden, or about 3,000*l*. So also one over the Saat, in the county Przemisl, with a total span of 497 feet over three stone piers, cost only 48,600 gulden, or 4,050*l*. At Tarnow, one over the Bial river, in 1782, with 177½ feet span, only 10,080 gulden, or 840*l*.; and as recently as 1802 one in the county of Arvanser, width 236 feet, at the expense to the imperial treasury of 15,600 gulden, or exactly 1,300*l*. —so cheap is labour and indigenous material in that country, which may almost account for the obstinacy of resistance offered by it to the Austrian arms, where men are so readily to be procured and such immense woods exist to cover a retreat or to check the operations of an invader. William Bell.

## A GERMAN ARCHITECT ON ARCHITECTURAL COMPETITION.

At a time when architectural competition is so much discussed, both as to its principle and practice, the following remarks by a German architect (M. Van der Nüll), on the occasion of a competition for the Parliament Houses at Pesth, may not be useless:—

"The course of calling upon architects to submit designs in competition is one which ought, if properly carried out, to lead to a satisfactory result, by reason of its *publicity*; but as long as the instructions issued are not accompanied by a distinct assurance that the prize or prizes *will* be awarded to one of the designs submitted, and as long as the capability of the judges to decide on the artistic as well as the general merits of the designs is little considered, and their proceedings deserve so little confidence from architects, competition will continue to be a mere form to screen jobbing.

It would seem reasonable that, as in other professions the merits of men and measures are only decided on by persons *properly qualified*, architects should at least be treated with the same consideration: but not so; to criticise *architecture* seems easy to every one, and laymen (if the term may be allowed) are even beginning to furnish designs!

It too frequently happens that designs submitted in competition are returned with the answer that they do not fulfil the required conditions; and it is certain that the result of often great mental toil is thus exposed to piracy, without any safeguard.

But these great evils are not inherent in the *principle* of public competition, but are the results of its improper use, and might be remedied if the attempt were but made in earnest.

When the building for which designs are required is of considerable extent, as in the present instance, the premium offered must necessarily be of small account in comparison with the whole of the outlay, and should, therefore, be awarded to the best design, according to the terms of the instructions, even in the almost inconceivable case of none of the submitted designs being suitable; for surely it is worth some small sacrifice to obtain the result of so much mature deliberation on the requirements of the case as will be found in the different designs.

The remaining evil, that of the decision, might perhaps be removed by calling on the competing architects themselves to decide on the merits of the designs,—each, of course, omitting his own; or should this method prove impracticable, the Institute of German Architects might, at its annual meeting, be called upon to determine the artistic merits of the respective designs, when it would remain for the body instituting the competition to adopt one of them,—grounding their choice on the opinion of the institute.

In conclusion, it may be observed that it is very desirable to obtain the opinion of the public by *exhibiting* the designs,—as the majority of an enlightened and educated people are generally tolerably unanimous in their opinion."

## THE VENTILATION OF STABLES.

At a late meeting of the Highland Society, Mr. Neil Ballingal, of Kinross-shire, farmer, read a paper on this subject, containing the following remarks:—The experience of modern times, both as respects man and cattle, proves that nothing has greater influence upon health and longevity than the nature of the air which is ordinarily breathed. The air expired from the lungs is naturally and necessarily impure, and to breathe the same air continuously is to inhale what acts on the system as a poison. More especially as regards my immediate subject, there can be given no more convincing proof of the imperfection of the system at present generally pursued than the effect produced by the various agents in operation, even on the timber and roofing of stables and byres. Every one acquainted with the subject knows that from imperfect ventilation, the plastering and lathing of roofs fall away in flakes, and are reduced to rottenness by the constant action of the condensed steam. So much is this the case, that it is no unusual thing, in the course of a nineteen years' lease, for it to be necessary to re-roof a byre, if home timber has been employed. Now, this action indicates a want of power to carry off the impure air yielding the condensed steam, that must prove deleterious, in the highest degree, to the cattle; and we need not wonder, in these circumstances, that pulmonary complaints among cattle are alarmingly on the increase. It is with a view to lead others to contribute their experience on a subject so important to the agriculturist, that I venture to submit what has occurred to myself regarding ventilation.

The subject of my experiment was a byre, about 40 feet long by 16 broad, the height of the side walls being 8 feet, and the roof being tiled, with lath and plaster under the tiles. I found it in a state of complete disrepair in the roof, the wood falling, which had been rendered rotten by the condensed breath of the cattle in continual operation on it. I first raised the side walls 2 feet. At the head of each animal I placed an air slit 2 inches deep, with 1 foot of horizontal length externally, and widening till internally it had a horizontal length of 18 inches. Externally, this slit was about 8 feet from the ground, and it rose gradually till, in the inside, it was 10 feet. Under the ridge rows of tiles on both sides of the roof the tile lath alone was put on, leaving these rows uncovered with lath and plaster from end to end of the byre. The well known property of heated air to dilate and ascend, and that of cold air to descend, sufficiently accounts for both my reasoning and adopting this process, and for its effects. The gradual rise of the cool air through the slit provided for its subsequent ascent for a brief space, so as to cool the heated air passing from the animals' lungs before it should strike the roof, and prevent it from depositing the moisture which it contained. By the slit being gradually widened, I aimed at spreading the air over as large a surface as possible, and without introducing too much cold air, giving the most extensive effect to what was introduced. The removal of the plaster has provided for the egress of that portion of the heated air which ascended to the ridge of the roof.

The result has been most successful. The cattle have, since that time, been uniformly strong and healthy. The air of the byre is cool and refreshing in all weathers; and, what affords a palpable proof of the excellent effect of the system, the wood of the roof which, as has been mentioned, gives way soon in all ordinary cases, is, at this moment, as clean, white, and sound as it was on the day in which it was put up two years ago.

The simplicity of the plan consists of:—1st. In the case of a slate roof, I propose as the most economical plan, to raise the lower edge of the slating by means of a board laid on blocks on the outer edge of the wall, leaving apertures of about an inch high between the board and the wall, which will admit a free current of air. The air will pass under the outer board and lower edge of the sarking, in which a horizontal slit is to be cut of about one inch wide, so as to admit its free ingress. To the whole scheme double apertures are necessary. The second or upper aperture, in the case of slate roofs, is thus provided underneath the second row of slates. On both sides let the sarking be removed for the space of about four inches from end to end. This leaves board enough to which to nail the slates; and the aperture allows the heated air to escape gently through the seams of the slates. In cases where cattle are tied with their heads to the gable ends, slit openings up the gable, leaving sufficient strength of sarking to stiffen the roof, will answer the same end. 2nd. In the case of a tile roof. In the lowest row of tiles take off the under slip of plaster lath. This will admit a sufficiency of the external and wholesome air through the curved vacancies of the tiles. Then for the second aperture —under the ridge or topmost row of tiles on each side, leave that row, as in my experiment, free from lath and plaster, from end to end of the byre; there is thus provided a sufficient aperture for the escape of the heated air.

An article on this subject, giving the result of other personal experience, will be found in an early volume of our journal.

## A TRULY "GOTHIC" EDIFICE.

A chapel, described in the local papers as "the beautiful design of —— ——, Esq., architect," has lately been erected in St. Paul's parish, Bristol. The style is *imitation* Tudor, and the plan almost a square. Its interior "beauty" consists of an enormously projecting gallery attached to the four sides of the "sacred edifice;" and while *some* of the principal timbers in the roof are shown, the spaces between them are *plastered* and ornamented with centres formed of the *acanthus* leaf. The street, or front, elevation is chiefly remarkable for a peculiar pediment rising from the parapet (supported at the back by an iron bar springing from the roof), and exhibiting the name of the chapel in large *Roman* characters.

The other features of the front are three extravagant four-light windows, with a transom formed of quatrefoil to hide the floor of the gallery. At either extremity of this front is a very depressed door-way. The mouldings, mullions, jambs, &c., are of freestone, *without* dressings. The walls are of rubble, plastered and stuccoed. Cost of chapel and vestry from 2,000*l*. to 3,000*l*.

How long, Mr. Editor, will the public submit to such caricatures of Christian architecture? How long is our glorious art to be degraded by its so-called professors?

Bristol. No Goth.